

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

Claims 1-29. Cancelled.

30. (currently amended) A method of producing a transgenic mouse comprising a homozygous disruption in a melanocyte stimulating hormone receptor gene represented by SEQ ID NO:19, the method comprising:

- (a) ~~introducing a targeting construct targeting the~~ mouse embryonic stem cell comprising a null melanocyte stimulating hormone receptor gene into a murine embryonic stem cell allele encoding mRNA comprising a polynucleotide sequence of SEQ ID NO:19 into a mouse blastocyst;
- (b) ~~selecting for the embryonic stem cell which has undergone homologous recombination;~~ introducing the blastocyst into a pseudopregnant mouse, wherein the pseudopregnant mouse gives birth to one or more chimeric mice; and
- (c) ~~introducing the embryonic stem cell in to a blastocyst;~~ breeding the chimeric mice to generate the transgenic mouse.
- (d) ~~implanting the resulting blastocyst into a pseudopregnant mouse, wherein the resulting mouse gives birth to a chimeric mouse;~~
- (e) ~~breeding the chimeric mouse to produce a transgenic mouse comprising a heterozygous disruption in the melanocyte stimulating hormone receptor gene; and~~
- (f) ~~breeding the transgenic mouse comprising the heterozygous disruption to produce the transgenic mouse comprising a homozygous disruption in the melanocyte stimulating hormone receptor gene;~~

~~wherein the transgenic mouse when homozygous for the disruption lacks production of function protein encoded by the melanocyte stimulating hormone receptor gene and the transgenic mouse exhibits hypoactivity.~~

31. Cancelled.

32. (Currently amended) A transgenic mouse ~~comprising a disruption in a~~ whose genome comprises a null endogenous melanocyte stimulating hormone receptor gene allele, ~~represented by wherein said endogenous allele encodes mRNA comprising a polynucleotide sequence of~~ SEQ ID NO:19, ~~and wherein where the disruption is homozygous the transgenic mouse lacks production of functional protein encoded by the melanocyte stimulating hormone receptor gene and the transgenic mouse exhibits hypoactivity~~ said null allele comprises a polynucleotide sequence encoding a selectable marker.

33. (Previously presented) A cell or tissue isolated from the transgenic mouse of claim 32.

34. (New) The transgenic mouse of claim 32, wherein said mouse is heterozygous for said null allele.

35. (New) The transgenic mouse of claim 32, wherein said mouse is homozygous for said null allele.

36. (New) The transgenic mouse of claim 32, wherein said selectable marker is a neomycin resistance gene.

37. (New) The transgenic mouse of claim 32, wherein said selectable marker is a *lacZ* gene.

38. (New) The transgenic mouse of claim 35 wherein said mouse demonstrates an increase in total distance traveled in the open field test, as compared to a wild-type control mouse.

39. (New) The transgenic mouse of claim 38 wherein said increase in total distance traveled is an indication that said mouse is hypoactive, relative to a wild-type control mouse.